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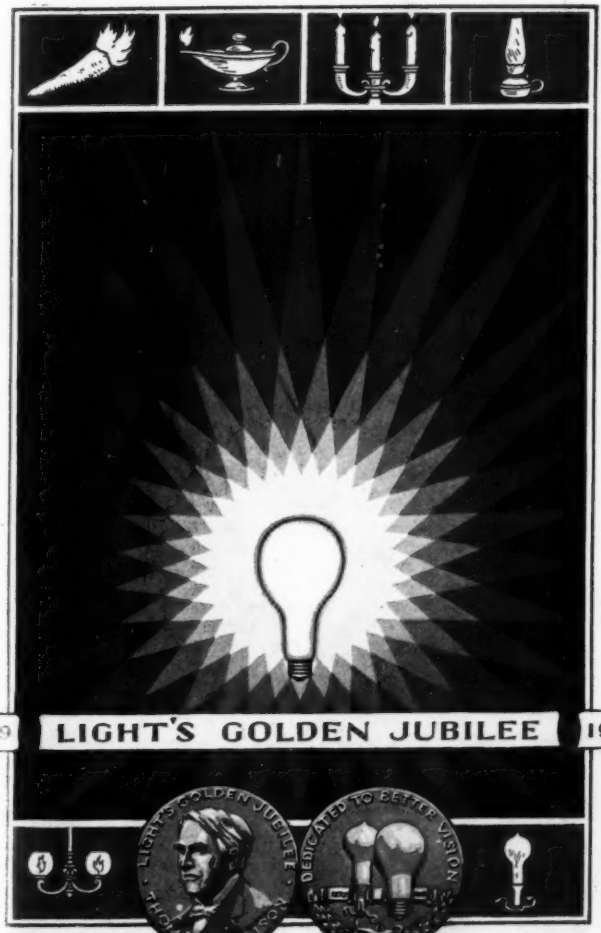
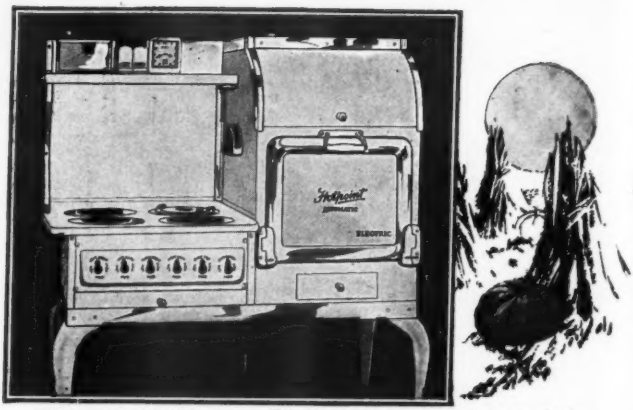
Electricity on the Farm

U.S. Department of Agriculture

A Monthly Magazine for the Progressive Rural Family



October 1929



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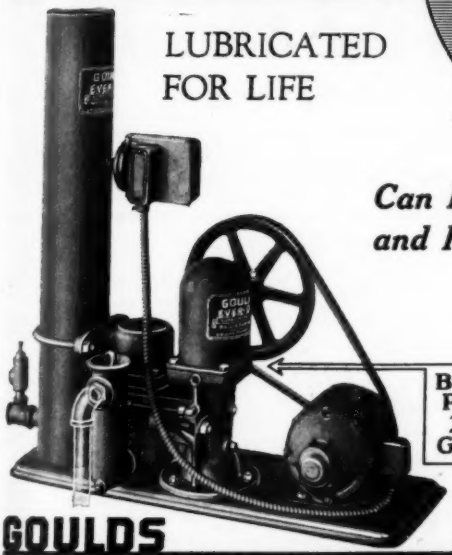

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Electricity on the Farm

Vol. 2 OCTOBER 1929 No. 10

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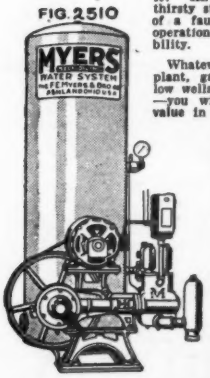

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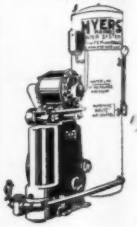
FIG. 2511



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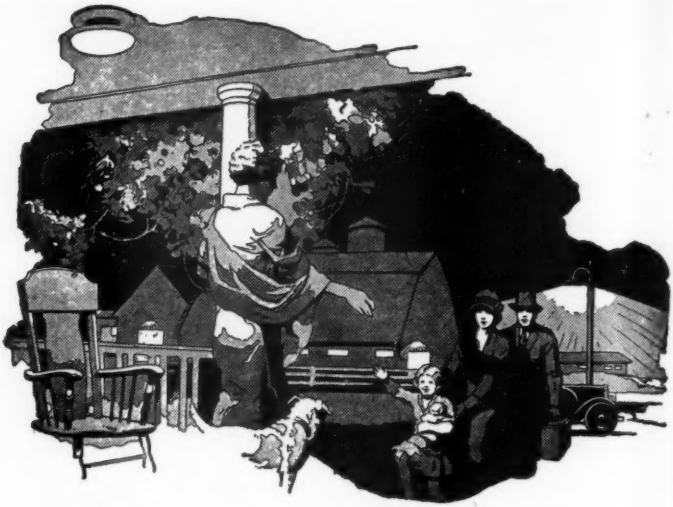

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Electricity on the Farm

Vol. 2 OCTOBER, 1929 No. 10

Light's Golden Anniversary

On October 21st, 1879, Thomas A. Edison announced the success of incandescent electric lamps. Shortly before that date he had initiated a system by which electricity was produced and distributed for light and power. The advent of the incandescent lamp marked the beginning of widespread changes in living conditions and industry.

What electric light actually means to us in the present day can only be appreciated when we are suddenly deprived of it through accident or power interruption. It has contributed to better education by making reading by artificial light as easy on the eyes as by daylight. It has improved public health by disclosing by its bright rays unsanitary conditions, which are promptly rectified. It has given people a fuller enjoyment of life by brightening up evening hours in the home. It has increased public safety through elimination of the fire hazard incidental to the old kerosene, gas or gasoline lights. And finally, it has accomplished tremendous results in advancing industry, by providing such illumination that production in factories is speeded up, accidents are reduced, and better work is accomplished.

It is thus proper and fitting that the birthday of the lamp should be celebrated, and that due tribute be paid the inventor thereof. Mr. Edison has in his life time invented and developed many things which have proved of tremendous benefit to the human race, but never in the history of the human race has any single invention contributed more to the welfare of such a vast number of people than has the incandescent lamp. It is for this reason that October 21st is to be celebrated throughout the country as Light's Golden Jubilee. Industries, associations, and individuals are to cooperate in making this one of the most notable celebrations in the history of this country.

Lighting the Way to Poultry Profits

By E. R. MEACHAM

ONE warm, hazy day last August, I drove out north of Fox Lake on a road that curved past prosperous looking farms on its way to Waupun. I was hunting for the farm where Max A. Moldenhauer lives, for Mr. Moldenhauer, local gossip has it, is more than usually successful in lighting his flock for winter eggs.

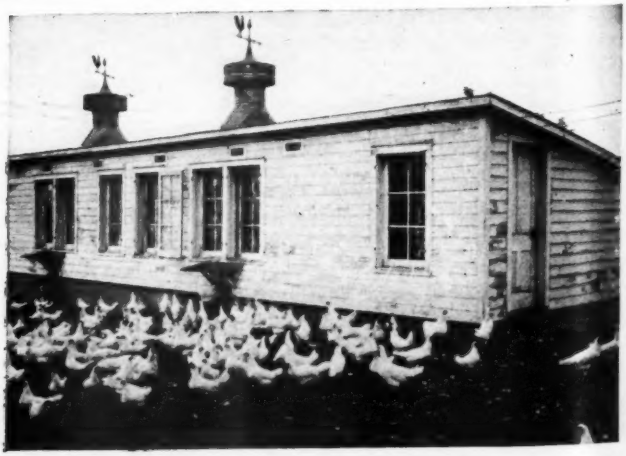
A neatly painted farm sign stopped me, and I turned in to find the last load of hay standing in the driveway of the barn on its way to the mow.

When I explained my errand and asked if I might take some pictures of the hen house, Mr. Moldenhauer and Raymond, his son, clambered down from the load, and came courteously out to the hen house with me. Mrs. Moldenhauer brought out a pail of feed and called her beautiful flock together, so we could get a picture of them, too.

The hen house is extraordinarily well built and convenient. The feed room at the end of the building nearest the house, has metal feed bins along one wall and a big open bin where some of the feed is mixed near another. The clock that controls the lights is also in this room near the entrance switch and fuse block.

Next comes the wide light room for the hens. The ceiling is lower in there, curved and covered with a heavy insulating material like that on the walls of the room. The building is so warm that Mr. Moldenhauer says water never freezes in there even during the extremes of Wisconsin winters.

Two 50-watt lamps with excellent metal reflectors that direct the light down toward the roosts and



Where the Moldenhauer's Get Their Winter Eggs

floors make twelve-hour daylight for the Moldenhauer hens all winter long. These lamps are fastened to a beam running lengthwise of the room.

"All that those lights do," said Mr. Moldenhauer, "is to give those hens a chance to feed. You'd be surprised at the difference it makes. Those hens get too empty when they have to go such a long time without anything to eat."

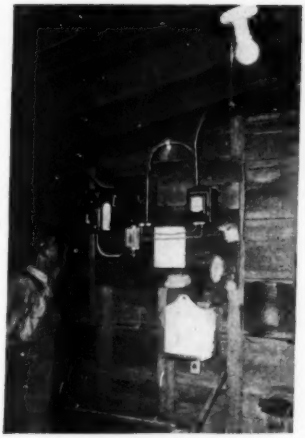
Right there Mr. Moldenhauer put his finger on the whole story of lighting the hen house to get winter eggs. The lights have nothing to do with the eggs; they have no hidden, mysterious effect upon the hen. They simply let her see to eat. They give her throughout the winter when our natural daylight is from three to five hours shorter than it is in spring and summer,—a twelve hour working day. Hens have to take in and store up food before they can lay well. During the long cold nights, hens draw upon this reserve to maintain their bodily warmth and vigor. There was seldom enough surplus to make into eggs.

Mr. Moldenhauer feeds carefully. One thing that has kept his flock free from leg weakness or rickets during long months of heavy production when they are shut away from the sunshine is in liberal use of cod liver oil.

"I feed about one large cup of cod liver oil to each 100 lbs. of mash when the flock is working hard," said Mr. Moldenhauer. "I go back farther than that with it, too. There are plenty of dark, rainy days in April when the baby chicks get no sun. I feed them some too, to get my flock in good condition."

Mr. Moldenhauer keeps from 200-225 pullets and yearling hens. The poultry is only a side line with him, but clever handing makes it a very profitable sideline even though he sells his eggs only to the local markets, not at any fancy prices.

He begins lighting the flock about the middle of November and keeps it up until the first of March; then he gradually tapers it off until the feeding comes in natural daylight.



Raymond Sets the Clock that Controls the Lights

The clock on the wall turns the lights on for him at 4:00 in the morning before he wants to be stirring on cold winter days.

"Mr. Wallace, the owner of the farm, made an investment in the poultry house, the brooder house, and the brooder stove of $1,100. Theneighbors told him he was crazy to put on equipment like that for a renter," said Mr. Moldenhauer. "But he was a close figurer. At any rate that very first year,—even after we had bad luck with some of our baby chicks, his half of the income from the flock paid him a little more than 10 per cent on his investment. Mr. Wallace always said he had the laugh on them, then."

I am thinking he probably knew his renter, too, for profits from poultry would quickly fly out of the window of the best sort of house if proper management were lacking.

The Two Factors

But suppose an excellent poultry man had a good flock, snugly housed, clean and comfortable; suppose his rations met the most rigid requirements for egg production; when the short winter days draw on, his hens are going to need every ounce of food they

can get in the short day to keep up their body weight. They cannot get enough food into their crops to last through the long fast between supper and breakfast, so there is never any surplus to make into eggs. You come right back to the beginning again. Lights and proper feeding are twins in the business of getting winter eggs.

Those long winter fasts sent the prices of eggs rocketting skywards. Now the hen herself has no economic sense. She will gladly lay all her eggs in the summer time when everybody else's hens are laying, too and pay no heed to the price. But the poultry man has,—and as soon as he began to discover that his flock could be coaxed into yielding her heaviest production when prices were highest, he took advantage of it.

The idea is of Yankee origin.

Back in 1889 a Dr. Waldron of Buffalo lighted his hen house to reproduce the long working days of summer. Just before the end of the century a large poultry man near New York began using lights on his flocks. Half a dozen years later, Prof. Halpin, head of the Poultry Department of the University of Wisconsin tried the experiment. But so little publicity had attended their early investigations that each thought he was originating the idea, though Mr. Secor of *Successful Farming* tells us that they used it now and again in Queen Elizabeth's day to get a winter egg.

Then about 1911 Mr. and Mrs. George Shoup of Washington noticed that when they were doing their morning chores by the light

Two Lamps on the Beam Light the Feeding Floor

of a lantern, the hens would fly down from the perches and work busily in its rays.

An old English neighbor visiting them laughed at the eager pullets and said:

"Why don't you give the bloomin 'ens lantern light to h'eat breakfast and supper by."

They did.

"The birds were so evidently pleased with this arrangement that we could hear them singing long after dark, and in ten days from the puchase of the lanterns our production had gone up from 45 to 200 eggs a day," wrote Mr. Shoup in a letter relating their experience to the Editor of *Reliable Poultry Journal.*

This was the beginning of our modern practice, though it was half a dozen years later before the popular acceptance of the idea developed into practical application. During the last ten years it has spread like wild fire and is now accepted as standard practice like incubation.

When planning the lighting of the hen house, the avoidance of shadows is one of the first concerns. They found, at these various State experiment Stations, that the hens will only work well when there is plenty of light. She sits down and loafs in shadowy corners; she will not come down from dimly-lit perches at all. The arrangement of the lights depends on the shape and size of the house. The recommendations for their intensity vary so widely in different parts of the country that adherence to some local authority is suggested. Cornell recommends one 40-watt lamp for each 200 square feet of floor space; Oregon favors 100 watts.

The method of giving this twelve-hour day to the hens varies, too. The artificial light may begin in the early morning and last until natural daylight creeps in or it may come on at sunset for a few hours or it may get the hens up for an evening lunch some time before midnight.

But that long nightly fast must be shortened in some way, so that what the hen's crop can hold will last from meal to meal.

Then last October, Mr. J. E. Rice of the Department of Poultry Husbandry at Cornell University reported something new.

"We have tried each of these methods in a good many combinations and, all things considered, prefer to give a portion of the light in the evening and the balance in the morning. As between evening light alone, or the evening lunch alone, assuming the same intensity of light and amount of lighting, the morning illumination appears to be the most effective in promoting activity and increasing egg production because the birds are hungry at that time."

He considers the method of feeding an important factor, too.

"The most satisfactory plan for feeding and lighting which we have found is to turn on the lights at twilight and feed the birds liberally on grain by trough feeding. They should then go to roost of their own accord and acquire the habit, which they will do after a little education, at about 7 o'clock. Then turn on the lights in the morning at 5:00 or even 6:00 o'clock, which will provide a uniform 12, 13, to 14 hour day, as may be desired throughout the entire season. Too long an opportunity to eat and exercise may cause too rapid an increase in pro-

(*Continued on page* 38)

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INDEXED

Mechanical Grading of Fruit

By CHAS. E. SEITZ

SCIENTIFIC production has greatly increased the volume of fruit for marketing in the United States. The fruit industry has grown to such tremendous proportions that many problems of marketing have developed. It is no longer possible, for instance, for an apple grower to succeed by producing fruit of inferior grades and indifferent quality. The consumer is demanding well graded fruit of good quality, packed in such a way that the quality can be easily determined. To meet this demand the more progressive growers are adopting modern mechanical fruit grading equipment that is enabling them to place a standard grade of fruit on the market at a minimum of cost for grading.

The Western apple grower, due to his disadvantage of long shipment to the larger markets, was forced to develop a standardization of grade and pack whereby only the highest quality of fruit was shipped. Through their better methods of production, grading, packing and advertising, the Western fruit growers have succeeded in firmly establishing themselves in the Eastern markets in spite of the disadvantage of transportation costs. If the Eastern growers are to meet the competition of the Far West growers, they must adopt standard methods of grading and packing. In fact, the future financial success of the fruit growers in the eastern half of the United States will depend very largely on the development and success of better grading and packing methods. The practice of using the individual and community packing house rather than packing in the orchard has been followed for a number of years in the Far West. With the packing house equipped with suitable machinery, such as packing tables and mechanical sizers or graders, work can go on in all kinds of weather.

The passage of a compulsory grading law in Virginia has enabled the fruit industry of the state to regain lost markets and gain new ones. Just what such a law can accomplish for the fruit growing program of a state is expressed by Professor F. A. Motz, Horticulturist of the Virginia Polytechnic Institute, in a report to the Virginia Agricultural Advisory Council.

"At the beginning of the program the committee was greatly concerned with the grading, packing and marketing problems confronting the fruit industry of the state. No uniform grades were in existence, every grower packed according to his own ideas, there was no particular set of standards and consequently the markets were rapidly slipping away. During the five-year period inspection had been developed in all its phases. Uniform grading laws have been established, and above all else and perhaps the greatest accomplishment of all was the passage of the compulsory grading and branding law. It is our opinion that this law will do more toward placing the fruit industry of the state in the position in which it belongs than all other things combined.

"The inspection work has developed from a small beginning to a point where it is rendering service to a large part of the state. Inspection work was undoubtedly the forerunner of our compulsory grading law, and it is difficult to measure its exact worth. Our marketing methods have been greatly improved because of the progress made in standardization and inspection of the product. Buyers are again taking an active interest in our product. New markets are being developed. The export market has been improved and our fruit is being looked upon with increased favor each year. We believe that the work already done has met with favorable response in other states.

Apple Packing and Grading in the Wenatchee Valley District of Washington

It has attracted considerable interest at least and other states have indicated a desire for similar action. The work done has not only enabled us to regain those markets which a few years ago seemed lost, but it will help us to secure and build up additional markets, both at home and abroad which must be attracted to our product because of its superiority."

Market requirements are becoming more rigid. Everywhere the markets are demanding well standardized fruit. A well graded product, attractively packed in a clean standard container, sells quicker and easier and at a better price than inferior grades and packs. The well graded pack results in better satisfaction to the grower as well as to the merchant and the consumer. The merchants want the standard fruit because the ul-

A 5 H.P. Motor in the Basement Operates Two Apple Graders in Rockingham Company's Virginia Farmers' Co-operative Packing House. 12,000 barrels of apples were graded and packed in this house during the 1928 season

timate consumer, who is the final judge, is demanding fruit of standard quality. The quality of fruit may be the very finest, but unless it is properly graded and packed, it will not secure the top price.

The experience of Mr. F. H. Wissler, a Virginia fruit grower, illustrates what can be accomplished by proper grading and marketing in attractive packs.

"You will recall," says Mr. Wissler, "that the year 1926 made all apple growers gray trying to figure some way to make the crop pay the expenses of production. All during the summer I could see what was going to happen, so I decided that the only way out was to have something a little better than the rest if possible. My idea was to appeal to the fancy trade where prices would not be such a large factor. I decided to adopt a standard basket pack and conceived the idea of using dividers between each layer of apples. I packed about twenty thousand bushels of Staymens and Saps in this way. Due to the extreme care that I exercised in grading and packing I was able to hold them an exceptionally long time.

"That year I used the Boston market exclusively. On the start I auctioned two cars. I then established a sound connection (and only one), and fed the apples to the best trade not quite as fast as they would take them. My prices advanced from $1.60 to $2.20 at top. This was well above the Western box on the same market, while ordinary baskets did not reach one dollar. The factors directly responsible for my little luck were that I was blessed with good fruit and spared no effort to make it exceptionally good in grade."

The mechanical grader has become standard equipment with all up-to-date fruit growers. The right kind of equipment enables the grower to efficiently and economi-cally grade and standardize his fruit. The modern mechanical grader handles the fruit gently and sizes it more accurately than the human eye and at a much more rapid rate. It saves packing costs and enables the grower to move his crop in a shorter time. There are now a number of satisfactory mechanical grading machines on the market which size fruit very rapidly and accurately and at a large saving in labor costs. With uniformity in size as well as in other qualities, plus quantity handling becoming of such prime importance the power-operated mechanical grader is filling a real need. When properly operated it insures a steady flow of fruit through the packing house. Such equipment prevents loss of time

(*Continued on page* 38)

A ½ H.P. motor drives this apple grader in a Virginia growers packing house. This motor size is especially suited to the small grower, handling from 400 to 700 bushels in 10 hours

Corn Husker and Shredder

By T. E. HIENTON

THE corn husker-shredder seems destined to play an important part in the control of the corn borer. A recurrence of the practice of shredding corn fodder will very probably take place over the Corn Belt as the corn borer finds his way westward and southward from the present infested areas in the eastern section of it. Formerly, the practice was more nearly widespread over the Corn Belt than it is at present. The introduction of the silo decreased the acreage formerly husked and shredded to provide roughage for cattle.

T. E. HIENTON

This recurrence of the use of the husker-shredder which is being brought about by the advent of the corn borer together with the building of farm electric lines in the infested area is responsible for an unusual interest in the operation of husker-shredders with electric power.

To Determine Motor Size

Indiana farmers interested in operating husker-shredders with electric motors were unable to learn from manufacturers of such machines what size of motor would be required for huskers of various sizes. Due to lack of such information, the Agricultural Engineering department of the Purdue University Agricultural Experiment Station undertook to determine during the winter of 1928-29 what husker could be satisfactorily operated by a 5-hp. motor.

The first test was conducted on the farm of Charles Miller near Huntington, Indiana, in November, 1928. A four-roll husker-shredder overloaded the 5-hp. motor with the machine running empty so that a two-roll machine was substituted in its place. With this husker and the 5 hp. motor, 41 shocks of corn were husked and shredded with the use of 8.3 kw. hrs. of electric energy. Sixty shocks of corn fodder were shredded and blown into the barn with the use of 12.1 kw-hrs. The shocks consisted of 100 hills of corn each. In the case of the corn husked and shredded, the power cost for both husking and shredding was 42 cents, very much below the corresponding cost of hand husking alone, $1.64.

Performance with Different Motors

Later tests were conducted with the same machine at the Purdue University dairy farm during February, 1929. In these tests the two-roll husker-shredder was operated at first by a 5-hp. motor and later by a 7.5-hp. motor. The capacity of the machine with the 5-hp. motor was 1944 pounds of corn stover shredded and 13.2 bushels of corn husked per hour with an hourly consumption of 4.98 kw.-hr. With the 7.5-hp. motor 2193 pounds of corn stover were shredded, 14.5 bushels of corn were husked, and 5.45 kw.-hrs. of electric energy used per hour. These figures indicate that a 7.5-hp. motor is not necessary for the successful operation of a two-roll husker-shredder of this type. The added capacity with the larger motor over that secured with the 5-hp. motor is not sufficient to justify its use.

Results of particular interest from these tests were the possibilities of utilizing a 5-hp. farm utility motor for operating another piece of farm machinery and the saving in cost of machine husking

over that of hand husking. Another very important result pertains primarily to the area now infested in that it will enable the electrified farmer to more easily dispose of the stalks which is so essential in the control of the corn borer.

Power Cost Low

The figures obtained at the Purdue University dairy farm show a power cost of less than 2 cents per bushel for husking and shredding with electric current at 5 cents per kw-hr. This cost is slightly greater than that obtained on the Miller farm but was due to the heavier fodder shredded on the Purdue farm, and the fact that it had been snowed under for sometime and as a result was rather wet. This power cost is just half that of the minimum for hand husking which is 4 cents per bushel and at the same time shredded the fodder for this lower cost. In addition, the entire crop was handled but once in this way, being moved from the shock to the shredder. The fodder was placed in much better condition for feeding thru shredding at a minimum of power and handling cost.

Ordinarily husking and shredding is done in November and December and the fodder weathers less when stored in the barn mow than when allowed to remain outdoors in the weather as is usually practiced with hand husking.

(*Continued on page 39*)

Five H.P. Motor Operating a 2-Roll Husker-Shredder on the Charles Miller Farm near Huntington, Indiana, November, 1928

How the Modern Farmer Lights His Home

By J. PAUL TELLER*

FIFTY years ago a young man, Thomas Alva Edison by name, was working in a small laboratory at Menlo Park, New Jersey, to perfect for mankind a better and safer kind of artificial light. On October 21, 1879, he succeeded in operating the first practical incandenscent lamp. Consisting of a fragile coil of carbon inside a glass bulb from which the air had been extracted, it gave forth but very feeble illumination compared with what we have today. But, compared to the candles and oil lamps of that day, its effectiveness and safety was startling.

All that mankind is able to do with the Mazda lamp of today, he owes to the ingenuity and persistence of this wonderful man. As proof of the fact that some people do appreciate what he has given to the world, all races and nations are uniting this year in the celebration of "Light's Golden Jubilee." The celebration commenced with a festival of light at Atlantic City May 31st. It culminates on October 21st in a banquet at the dedication of Mr. Henry Ford's Industrial Museum at Dearborn, Michigan, at which Thomas A. Edison will be the guest of honor. President Hoover is honorary chairman of the Sponsoring Committee and such notables as Harvey Firestone and General Bullard will be in attendance. During the same period, spectacular lighting displays will occur all over the nation as well as the world.

In what way can you share in the benefits of modern electric lighting? In what way can you give your family and business the help that is obtainable from no other source?

Improper planning and installing of your lighting system will prevent you, from the beginning, from properly using and enjoying this great boon. Selection of poorly designed, cheap lighting fixtures will restrict the use of your installation to such an extent that it will be a burden rather than a help.

*Manager, Commercial Lighting Section Westinghouse Electric & Manufacturing Co.

The Last Word in Bath Rooms: Color has become very popular in finishing bathrooms as will be noted in this illustration. Note brackets as well as ceiling lights

Secure Competent Advice

The first and most important step is to plan your installation with the help of someone familiar with the subject of illumination. Too many times the outlets are placed arbitrarily one to a room, particularly where nothing is thought of but the expense of wiring. Very often when fixtures are being purchased, they are selected merely because they provide a "lot of light." The fact that other types will give better quality of light, or illumination, as well as quantity, is overlooked. The lighting fixture manufacturer, the cen-

tral station which supplies your current or the up-to-date fixture dealer is ready and willing to advise you without charge how many outlets you need and where to place them. If their help is obtained before the wiring contract is let, your electrician can quote you on a wiring installation that will permit of proper fixturing without alteration when completed.

Include Convenience Outlets in Your Plans

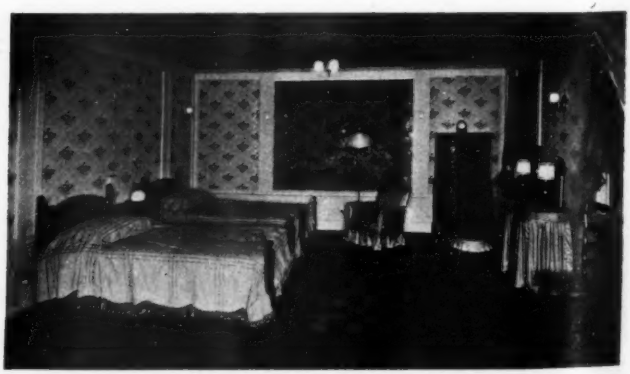
Many wiring systems are installed with no thought of the portable floor and table lamps that will be used. By including in the original wiring, wall or baseboard outlets for such items, also outlets for table and kitchen appliances, the total expense will be much less than a piecemeal job and the convenience and satisfaction with the result much greater. Sufficiently large service, meter and feeders must be installed to take care of the maximum demand. There is, therefore, no necessity of having to tear out and discard at a later date some portion of the installation on account of its inability to carry the required load.

Another economy that is lost sight of is that resulting from the installation of wall switches. Pull sockets on fixtures are in themselves a source of annoyance and trouble. A socket that does nothing but carry electricity is a delicate device. If it also contains springs and has to stand mechanical strains, early breakdown is likely to occur. Sturdy switches housed solidly in your walls will prevent this trouble and also conserve your current. Very often one decides to leave a room when near a door. Few turn back to a center fixture to turn off one or more lights, but will almost automatically operate a switch beside a door and within easy reach. Modern wall switches are so constructed that their operation is sure and so easy that the operator does not have to pause or hesitate at all.

Overhead Lights Are Best for Entrance

To properly light an entrance use an overhead enclosing glass globe containing a 50-watt lamp and mounted on a copper band attached to the porch ceiling. To add attractiveness select a lantern-shaped globe or purchase a lantern type art glass or panelled unit. If there is no porch, wall brackets of the same type above the doors or on both sides will be both practical and ornamental.

The type of lighting to use in the hall depends largely on its size



Here's a Mighty Cozy Bedroom. Ceiling fixture, wall brackets, and base receptacles permit an artistic lighting effect

Lighting Equipment of Dining Room Should Produce a Bright, Cheerful Effect

and shape. In any case, fixtures close to the ceiling are best. Where there is a stairway, low hanging fixtures cause light to shine in the eyes of those descending and causes a bad condition called glare. Glare may be described as misplaced light and its dazzling effect is a frequent cause of accidents of all kinds.

Lighting the Hall

If the hall is long, two outlets may be necessary, but ordinarily one will do. A semi-lantern type is quite often used, but if the hall is not distinctly separated from the living room, a smaller fixture of the type used there will be appropriate. All hall lights should be controlled by three-way switches so that they may be turned on or off from up or down stairs. The switch plate in the lower hall can then cover also the switch controlling the porch or entrance light.

The first method for electrically lighting living rooms was to convert gas fixtures or to install new ones of the same type except fitted with sockets instead of burners. As wall switches were not known, the controlling mechanisms had to be within reach. As new purely electrical fixtures were designed, many of them were of the same general proportions, and consequently the light sources hung in front of people's eyes. As a result a feeling set in against the use of ceiling fixtures and public taste called for wall brackets only. The effect produced was not entirely satisfactory as rooms so equipped had uncomfortable contrasts of brightness and shadow. Also, when the middle of a living room is used for entertaining, the effect is bad if there is no illumination from overhead to offset the shadows.

A quite suitable type of living room fixture is the plaque fitting close to the ceiling and supporting a number of medium sized lamps of the inside frost type. When covered by appropriate tinted glass shades the effect is most pleasing. Wall brackets may be used as accessories if the lamps are covered with glass, silk or parchment shades. The upright or candle type of bracket is most pleasing and the shades instead of being hung on, merely rest on top of the lamps. Plenty of floor, wall or baseboard receptacles will insure the use of table, floor or bridge lamps. Any one of them can be used for fans or vacuum cleaners.

The Dining Room

The dining room is most pleasing and comfortable when the light is divided about evenly between the table top and the surrounding area. One of the most pleasing effects is a four, five or six light center candle-effect fixture with silk or parchment shades over the lamps to throw light down upon the table. This lighting may also be supplemented with wall brackets to match as well as buffet and floor lamps. A floor outlet beneath the table permits the use of electrical percolators, waffle irons, etc., as well as electric candelabra.

The fact that the kitchen is the housewife's workship is frequently

A cozy Living room, with ceiling fixture, wall brackets and base receptacles to accommodate reading lamps, table lamps and radio

overlooked, particularly in regard to lighting. A most effective method of illumination is by means of a large diffusing enclosing globe in the center of the ceiling and high enough to distribute light evenly about the room. The best unit is one similar to that used in modern offices and consists of a ceiling band or short chain hanger supporting a ten or twelve-inch globe of milky white glass. A 100-watt or 150-watt lamp is none too large to produce the proper effect. If the kitchen is fairly large, wall brackets over the sink or range help immensely. Several wall outlets for appliances and fans should be installed with the lighting outlets and switches.

For the Bath Room

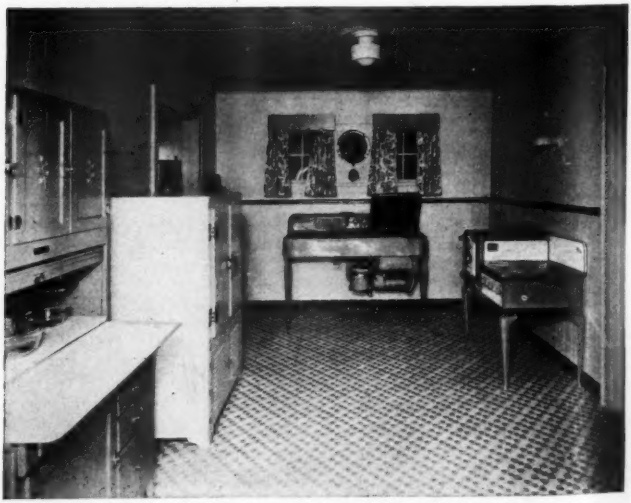
The bathroom, if large, should have a center ceiling fixture supplemented by a wall bracket over the wash basin and mirror or by two beside the mirror. A 60-watt lamp overhead and 25 or 40-watt lamps in the brackets will produce good illumination if protected and supplemented by proper glass shades of the open type. All such lamps (up to and including 100-watts) should be of the inside frost type to protect the eyes from glare.

Bedrooms are best lighted by means of center ceiling fixtures operated from wall switches. Chain drops or wall brackets at dressers are a great convenience. A wall or baseboard receptacle near the bed to furnish current for a portable bed lamp or table lamp to be placed near the bed, is now considered a necessity. If this be the duplex type it may also supply at the same time current for a warming pad or portable heater when needed.

If there is an upper hall a rather simple ceiling fixture or wall bracket at the head of the stairs will be effective. A 25 or 40-watt lamp will suffice but control by three-way switches will be found most convenient and safe.

Auxiliary rooms throughout the house may be lighted with simple ceiling or wall fixtures. These

(*Continued on page 42*)



It Would be a Pleasure to Work in this Cheerful Kitchen. Electric Range, Electric Refrigerator, Dishwasher and Exhaust Fan complete the Equipment

Teaching the Farmer and His Son

By J. P. SCHAENZER

AT a conference of Smith-Hughes teachers of high school agriculture held at Madison in July and attended by 85 instructors from all parts of the state, J .P. Schaenzer, leader of the Wisconsin project on the application of electricity to agriculture, discussed the plans, methods and subject matter used in presenting a course in rural electrification to farmers and their sons not regularly enrolled in school. As a result 26 instructors volunteered to teach such a course in part-time or evening schools, or both in their respective communities during this school year.

These special schools are usually held in the evening and most of the instructors conduct at least one or two such schools during the winter months in their community. These groups usually meet from ten to fifteen times and study some unit subject. In the past, they have spent their time on such subjects as dairy cattle feeding and management, farm records, farm machinery, legumes, or soils and fertilizers. The school conducted for the adult farmer is known as an evening school, while that for the farm boy as a part-time school.

High School Instructors Cooperate

The average high school agriculture instructor is very glad to secure information for teaching which is of a practical nature and has a direct application to farming. As the men and boys enrolled in these courses are actively engaged in farming, it is necessary that it be such, not only to hold their interest, but also that they may put into practice at home the information they secure in the schoolroom. When the author suggested a course on the application of electricity to farming, the idea was enthusiastically received by the men, as this subject has a direct bearing on everyday farm life.

Two such schools were held last winter at Omro and Waukesha, Wisconsin, by R. B. Locke and John F. Jones, respectively. These schools served as a preliminary survey to determine the method of approach, as well as the subject matter to be discussed and equipment demonstrated. Both of these schools were very successful. The average attendance for eleven meetings at Omro was fifteen and that of nine meetings at Waukesha twenty-five. The topics discussed at these meetings were as follows: Advantages of electricity on the farm, terminology and simple experiments with electricity, growth in rural electrification, the local rural rate, central station service, the individual light plant, farm wiring, electric motors, farm water supply, silo filling, feed grinding, elevating grain, hay hoisting and wood sawing with portable motors, the application of electricity to dairying and poultry production, and electrical household equipment.

Mr. Locke, who is very enthusiastic over the uses of electricity on the farm, says, "The subject is new, and a lot of interest has developed over it right here. Farmers are wiring their farmsteads, others have made application for service, others are thinking strongly of getting it and still others want to know something about it before they have the farmstead wired. Lots of farmers have asked me about the course and I know that the community demands it.

"Had the weather not been so bitter and the snow so deep, we would have had a full house every night. When a lesson as important as wiring is to be taken up, I want the people able to get in. The

same thing is true for motors, feed grinding, silo filling and all the others. They are all important, really interesting and right up to the minute. This course has aroused more interest among the farmers throughout the community than any other course ever offered here."

Power Company Assists

The Wisconsin Power and Light Company cooperated with Mr. Locke in loaning equipment for demonstration purposes and furnishing speakers. A truck load of home conveniences, everything from a curling iron to a range, was brought into the schoolroom the evening that this subject was studied. This enabled the members of the class to study the construction of the equipment as well as the cost of operation and care.

At the last meeting the high school girls of the Home Economics Department served a dinner to the group. Twenty-four were in attendance. All of the young men who attended were asked by Mr. Locke to sign up for projects, to carry on at their home farms some phase of the work that they studied at these meetings. Since this work was begun, Mr. Locke says that two members of the class have connected to rural lines, and a third has installed an electrically operated water supply system. He is also taking the group and others who desire, out at occasional intervals to see typical installations and demonstrations such as feed grinding, silo filling and water systems. The individuals of this group are also visited now and then by the instructor, which enables him to give them his personal assistance and advice.

Unusual Interest in Course

Mr. Jones, who believes that electricity will do much to relieve the farm of its drudgery and make it a better place to live, says, "We have had some unusual weather and road conditions to contend with this winter. I feel that the attendance shows that there has been keen interest in the course and the interest has increased as we have gone along rather than diminished.

The Milwaukee Electric Railway and Light Company assisted Mr. Jones in presenting this course. Motion pictures were used rather extensively by each instructor to supplement lectures and demonstrations.

Manufacturers, local implement dealers and electric contractors should also be asked to cooperate. Mr. Jones states that one of his most successful meetings was held at the I. B. Rowell Company plant. One hundred persons were in attendance. Five horsepower motors were used to operate hammer type feed grinders, ensilage cutters and grain blowers. Motion pictures of the machines in operation were also shown. At the close of the meeting, lunch was served by the company.

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(*Continued on page* 46)

Smith-Hughes High School Agricultural Instructors of Wisconsin Attending the Annual Conference at the College of Agriculture, University of Wisconsin, Madison, Wisconsin, July 13-20 Inclusive

The High Cost of Daylight—Indoors

Investigation Shows Electric Light to be Much Cheaper Than Natural Light for Inside Work

By CARL W. MAEDJE

AS every thinking farmer knows, natural daylight (sunlight) is free—costs nothing. It helps to grow his crops, ripen his harvest, and even cures and prevents rickets in his growing chicks.

But as a means of efficient illumination indoors, in the dairy barn, and even in the kitchen, few probably are aware that daylight becomes something of a luxury, especially when you compare its cost with the cost of modern incandescent lighting.

When first this was brought to the attention of the writer, he frowned, could scarce suppress a sardonic chuckle, and nearly dismissed the thought with a wetted thumb and swift turn of the page. So if you are inclined to do likewise, you are asked to weigh fairly what follows. For it is a fact that electric lighting is actually cheaper than natural daylight, indoors.

A lingering notion, it seems, still exists in all of us that the cost of electric lighting is relatively high. Perhaps it springs from memory of the fact that in days agone a kilowatt of electricity cost the consumer as much as twenty cents. But are we forgetting that for 47 years the price trend for incandescent lamps and electric energy—for light—has been nosing steadily downward? Thanks to improved generating machinery, the last ten years has seen a kilowatt hour of electricity produced from 1.7 pounds of coal instead of from 3.5 pounds. Yes, not only from efficient generation of power, but from efficient management as well, have the reductions in cost of electric light been made possible. Can this be said of natural daylight for indoor use? No!

Take the painstaking computations compiled by experts, done in exhaustive manner by M. Luckiesh and L. L. Holloday, Lighting Research Laboratories, General Electric Co., at Nela Park, Cleveland. While their researches have been confined largely to the cost of lighting in factory, office and home, still, their findings may readily be applied to indoor illumination on the farm as well.

Comparative Figures

According to the estimates, the initial net cost of daylight illumination for dwellings is from 110 to 225 percent of the initial cost of electric light; for apartments and hotels, from 100 to 140 percent; and for offices about 160 percent.

The annual cost of natural lighting was found to be from 95 to 125 percent of the annual cost of electric lighting.

Of the items contributing to the cost of natural lighting are these: the greater cost of constructing windows and roof-skylights as against plain walls and roofs; the cleaning and replacement of glass; the greater loss of heat from glass areas than from ordinary walls and ceilings; the valuable wall-space and ground-area consumed by windows and light courts.

In addition to this are the following factors: the independability of natural light, due to weather conditions; difficulty of control, with the result that sharp shadows are often cast over the work bench, over dangerous places, which, if not properly lighted, lead to accidents.

With reference to the greater loss of heat from glass areas, it should be remembered that for every heat unit lost by this means,

(*Continued on page 46*)

The Installation of a Satisfactory Dairy Refrigerator

By J. EARL CRESS
Fellow in Dept. of Agr. Eng., of Idaho

MR. R. A. Patterson, operating a dairy farm just out of Moscow, Idaho, has completed a dairy refrigerator (capacity 16 cases) to be used for storage of bottled milk in cases and household supplies.

The refrigerator is located in a milk house which has a ten-inch board wall filled with sawdust. The milk house contained an inset space at one end which was approximately 25 in. x 89 in., and this space seemed to be approximately the right size so was chosen as the location. The framework shown in Fig. 1 was then constructed. The brine tank was to be at the top of the box so 4x4's were used for supports.

Cork was fitted into the doors and framing of the box, in three-foot lengths. Two-inch cork was used on the sides and ceiling and three-inch cork used on the floor of the box. Each slab was sawed to size and trimmed with a draw knife and then placed in position. Each slab was numbered so the correct position could be found during the tarring process. The cork used on the floor of the refrigerator was placed directly on the cement floor of the milk house, then tarred and a cement coat applied later in the construction.

A furnace to melt the tar was

Fig. 1. Framework of Refrigerator Room in Course of Construction

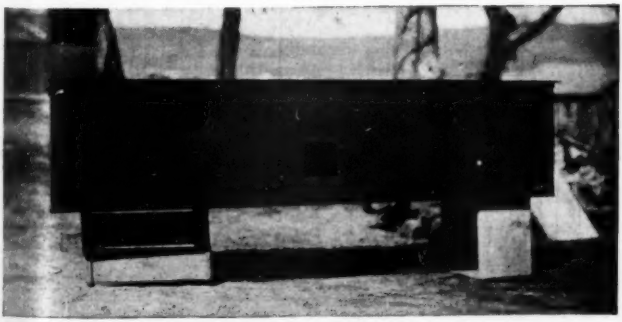


Fig. 2. Brine Tank. Two Circular Holes are for the Two Refrigerating Coils. Square Compartment in Center is a Space Provided for Freezing Ice Cubes for Domestic Use

built near the refrigerator, a point which cannot be too strongly emphasized. The slabs were handled by driving two nails into the cork to serve as handles. This method provided for the complete dipping of the slab without the usual tarry hands. Dirt and sand were scattered over the milk house floor, to prevent the tar from sticking to the floor. The cork was held in place by a few large headed, galvanized nails, only a few being necessary due to the rigidity of the cold tar. Wood veneering was used for covering over the cork, on the inner side of the doors.

Some difficulty was experienced in securing a good tank. The brine mixture for this particular tank was made from 130 gallons of water, 375 pounds of $CaCl_2$ and 2 pounds of lime. The weight of the brine in this tank was approximately 1,500 pounds. It is readily seen that with this weight of brine in a long narrow tank, there would be considerable pressure on the sides of the tank. A very satisfactory tank was made from 12 gage sheet iron supported at the top by a frame made of one inch angle irons. The picture shows the tank after it was painted on the inside and outside with asphalt paint. The two circular holes seen in the front side of the tank are for the two refrigerating coils and the small square compartment in the center of the tank is a space provided for freezing ice cubes for domestic use. The tank may be taken out through a long narrow door for repair or repainting, by

(*Continued on page* 46)

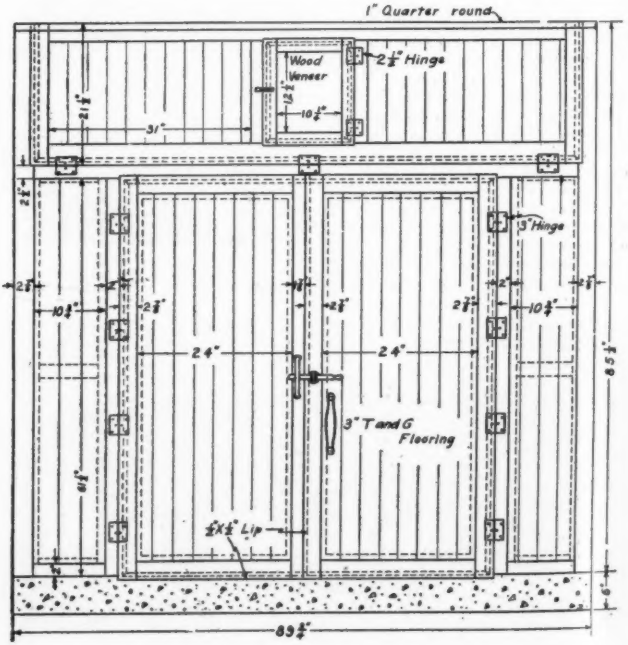
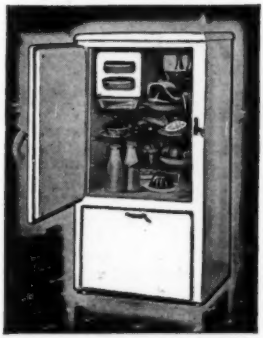


Fig. 3. Sketch Showing Dimensions and Details of Door Equipment of Refrigerating Compartment

With KELVINATOR your food supply is as safe in *January* as in *June*



The new Kelvinator Four $175 f. o. b. Detroit. Built of rust-proof steel. Nearly 9 square feet shelf space.

ESPECIALLY in winter, with its scarcity of fresh foods and its greater demands on bodily vigor, your family's health needs the protection afforded by automatic electric refrigeration.

With Kelvinator in the kitchen, there is never any guess work as to the condition of foods. Meats and vegetables can be kept for days. Milk is healthfully kept for cooking and table use in the automatically-maintained cold of Kelvinator—well below 50 degrees.

In addition there is the advantage of a constant ice supply—frozen quickly in cubes just the right size for cold drinks.

Kelvinator today offers fully automatic electric refrigeration in its most modern form. The new Quiet Kelvinator is most reasonable in price and may be enjoyed even while it is being paid for by using Kelvinator's attractive ReDisCo monthly budget plan. A wide variety of artistic cabinet models with list prices as low as $175 ready for installation in your home.

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We Endorse the National Food Preservation Campaign for September

ELECTRICAL HOUSEKEEPING

Conducted by
GAIL MEREDITH

Hallowe'en

LAST year our community club gave a Hallowe'en party for the young people of the neighborhood. Hallowe'en is a lovely time for parties because the entertainment is made to order for you.

Nobody knows just how Hallowe'en started, but for centuries it was looked upon as the night when spirits revisited the earth to walk beneath the moon; when spooks hid in every corner; hobgoblins jumped at you and witches swished past you riding the wind.

Men chose this night as a particularly favorable time for practicing the rites and ceremonies by which they hoped to lure these uncanny visitors into revealing the future in love, war, and business.

Our generation is not so credulous about ghosts. The only spooks and the fearful grinning goblins that haunt our Hallowe'en are the neighbor's boys and girls. But youth still seizes upon that night as an excuse for practicing the only rites of divination that have survived to our day; those which deal with love and marriage. So those rites, once performed in all seriousness by simpler peoples, are still done in sport each Hallowe'en.

We picked out some of these traditional practices for our guests to do. They were supplemented by a gypsy fortune teller and a treasure hunt which wound up the evening.

First we gave them apples to peel. They pared them carefully, round and round, then threw the peelings over their shoulders. The letters formed by the sprawling peel were the initials of their future lover.

Next we set them bobbing for apples hanging on a string. Each of the apples was named and the one who succeeded in taking a bite from the apple named for the one of his choice, was promised success in his wooing.

Next they named nuts and set them over the fire to roast. If the nut popped open, the lover was false; if it took fire and blazed, he was true. If two nuts named for a boy and girl burned together, they were to marry.

We sent the girls, squealing and giggling, out to a nearby cabbage field to pull cabbage. The amount of earth that clung to the roots typified the fortune of their future husbands.

The treasure hunt was not a Hallowe'en custom, but it is a popular conclusion to a party and we tied it in to the old traditions by having the directions given by ghostly, sheeted figures stationed at different points—by having bodiless hands stretch out from behind curtains—and sepulchral voices croak from hidden spots.

It was all very weird and mysterious. The clever arrangement of the lights on the course of the hunt helped the effect tremendously. Our local stage manager showed us how to drape the lights with green and blue to cast a strange, unearthly glow over everything.

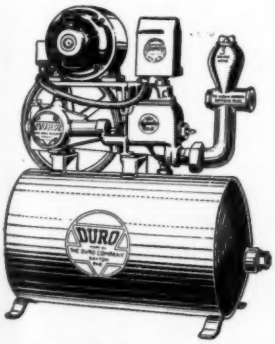
He it was who suggested the crimson lights in the fortune teller's hut, too, and helped us arrange the jack-o'-lanterns that

look for these things...

when you buy a Water System

A thoroughly reliable water system is the greatest comfort and convenience on the farm. Naturally when you buy your water system, you want the most advanced design . . . the most durable and dependable in operation . . . the most water system for your money. Look then, for these things:

Convertibility. Only in Duro Water Systems can you find convertibility. That means that you can install a low cost Duromatic Water System now, and later when your requirements increase, it is necessary only to install the next size motor on the pump for greater capacity.



Complete, automatic, electric, Duromatic Water System, 250 gallons per hour only $88.50. Other Systems as low as $69.50, f.o.b. Dayton.

Other Features. Pump and base are rubber insulated . . . Crank case oil drain . . . Tank is Galvanized Armco Ingot Iron—non-corroding and rust-resisting.

Automatic Air Regulator. The Duro Automatic Air Regulator prevents air-binding or water-logging of the tank. This is a patented Duro improvement.

Look for these things and you will choose Duro.

Send in coupon

THE DURO COMPANY
537 E. Monument Ave., Dayton, Ohio

---------- *Cut off and Mail* ----------

DURO *Automatic* WATER SYSTEMS

THE DURO COMPANY, 537 E. Monument Ave., Dayton, Ohio

Please send me full information on Duro Water Systems, and free advisory service on my requirements.

Name..... Address.....

They Burn Electricity in this Fireplace

lighted the house. By cutting a hole in the bottom instead of the top, we could set the pumpkin down over an electric bulb and it would grin away all evening with no smell of cooking pumpkin to disturb the peace.

We had no idea what the legendary fare of hobgoblins and spooks was, so our refreshments were modern in tone; sandwiches, doughnuts and cider, then little round cupcakes iced with orange and decorated with eyes and mouths of licorice finished the party.

* * *

The North Wind Doth Blow

IT is fall again. The wind quarrels with the apple trees in the orchard down the lane. It whirls around corners and howls down the chimney at night. It is time to get the stoves up or the furnace going most any day now.

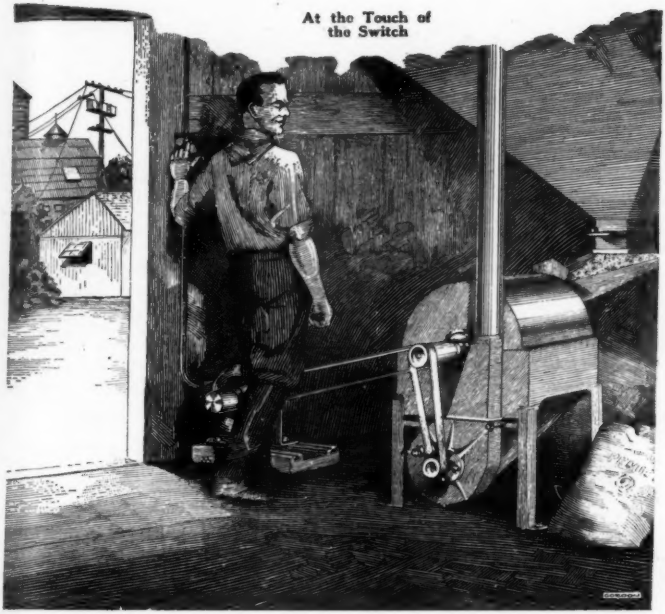
To-day the sun was out so warm that I laid my sweater aside while I worked in the garden, but coming in at dusk, I was glad to plug my electric heater in to take the chill off the bath room while I cleaned up.

We will be using it often now because my family are regular salamanders and like that little bit of flash heat when dressing in the morning, or to make their baths more comfortable at night.

I hunted up the short cord we use with this heater so we cannot set it close enough to the tub for a bather to reach out thoughtlessly and change the direction of the heat.

Of course, that is a basic law of

Mr. Fred Golliner of Mineral Point, Wisc. considers this pad Solid Comfort



An Abundant Supply of Fresh Feed

Properly installed, the Prater Farm Mill is entirely automatic in operation.

"Entirely automatic" operation means that all you need do to secure an abundant supply of fresh ground grain is to touch a switch, and then go about your other work.

In the installation pictured above at the right, whole grain is elevated into the storage bin at the left. This is effected by placing the sleeve on the blower pipe, and attaching an elbow which deflects the grain into the storage bins.

To elevate whole grain with the Prater Farm Mill it is only necessary to change the belt drive from the main to the fan pulley and remove the screen. Since the fan is operated independently of the main rotor shaft, the hammers are not in operation, and all of the power of the motor is available for elevating.

When grinding grain the sleeve opening is closed and the ground grain blown through a dust-collector admits the ground grain into the storage bins.

The Prater Farm Mill is distributed by leading utilities in every section of the country. The Rural Service Department of your electric company will be glad to cooperate in planning your Prater Farm Mill installation.

PRATER PULVERIZER COMPANY

817 West Washington Blvd. Chicago, Illinois

household safety. "Never touch an electrical appliance or switch while you are in the water."

My neighbor up the road uses her heater to warm the sunny alcove where grandma sits with her mending or knitting; she plugs it in on cold, dark days to make a warm spot where the children can play; she bathes the baby in its rays.

Her husband borrows it now and again during the winter to take out to the farm shop when he has a brief job on hand. He can work out there if his fingers are not stiff with the cold.

Sometimes when we come in late these fall nights, we think we will not bother to light a fire, but plug in the heater instead and turn it about to toast our several shins while we snatch a glimpse at the paper, or some one eats an apple before we start off to bed.

The heating pad, too, brings a heap of comfort these first chill days. I love to sleep with the wind blowing across my face, but I hate having the rest of me cold. That is why I so often slip the heating pad into the bed a few minutes before I get in. It is such a luxury to relax at once instead of lying all tense and curled up till the bed gets warm.

I Carry the Heater into the Living Room on Frosty Nights

If you look at the matter with pencil and paper in hand, you will realize that this is a very inexpensive method of house heating. Of course, it is really only heating that tiny portion of the house where you are, but sometimes that is all you want. As for the cost, my heating pad takes about as much as a reading lamp, 75 watts, so if I burned it every single night, for even half an hour, it would only take a little more than a kilowatt hour a month.

The portable heaters draw varying amounts of current. Mine takes 500 watts, so I could burn it steadily for two hours if I wanted it, and use only one kilowatt hour of current.

* * *

Soaps and Such

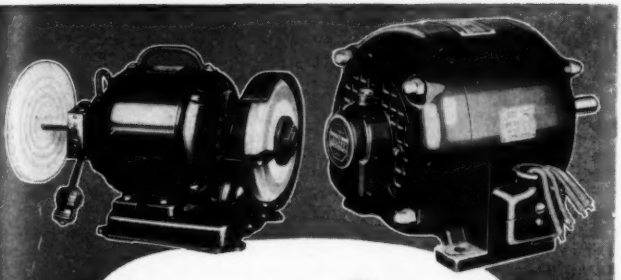
THE best housekeeper in our neighborhood weighs about 110 pounds and stands just five feet high. I am not offering those statistics primarily as the explanation for her fastidiously immaculate house, nor her charming family—but they may have had their bearing.

When Ann was first married her proud young husband took her out to his home on their wedding trip. One of the hired men, stealing shy glances at her, murmured a doubtful comment that became history in their family:

"She look pretty for nice, but not very bully for stout."

She herself recognized that ninety pounds did not yield a tremendous amount of muscle to pit against the various jobs in keeping house, so she put all her "clever for smartness" to work and learned the easy way of doing hard jobs. She learned so effectively that she has always had an enviable local reputation for being able to get past mountains of work.

"The washings were a bugbear to me when I had to rub the clothes on a washboard," she told me once. "I just had to find some way of putting something else besides my back into the job. That's how I began to learn what other people found the best methods, and all about soaps and such."



Here's *Real* Farm Relief

THE newspapers and magazines these days are full of talk about "Farm Relief." It is all rather intangible and, possibly, is a good while in the future.

With a Master Motor Grinder you can sharpen your axe, sickle knife, corn knife, scythe, and many other farm tools, quickly and easily.

And—with the Master Portable Motor you can free yourself of the drudgery of filling silos, cutting wood and many other hard farm tasks.

This is real "Farm Relief" that you can have immediately and at small cost. Write us for information.

THE MASTER ELECTRIC CO.
Dayton, Ohio

STOCKS CARRIED IN PRINCIPAL CITIES
More Than 70 Service Stations
MASTER GUARANTEED MOTORS
1/20 TO 10 H.P. Dayton THE MASTER ELECTRIC CO. Ohio Not More Than 40°

That study of soaps and such led her first into an investigation of just why soaps clean.

The first step in getting dirt out is getting the soap in, in through all of the fibers of the cloth. Soapy water has what scientists call "a low surface tension." It will spread out thinly through all the fabric. There it combines with the greasy dirt, aided by the mechanical action of rubbing or sloshing the clothes about. A good soap solution in the form of suds will pick up and hold the particles of soil. Then the movement of the water flushes the dirt and soap out of the clothes. Undissolved soap, soap making no suds, is just wasted soap.

Here we have to back off a step and remind ourselves that all this beautifully simple cleanisng process goes on according to schedule, only if we have soft water.

If we have not, soap in the hard water combines with the mineral salts that make it hard, and forms a substance called curd that usually will not dissolve. This picks up the loosened dirt and clings to the clothes.

Even rinsing in hard water will sometimes form a curd from the soap left in the clothes. It is very hard to get this curd out, and it makes things gray and unsightly if it is left in.

"When I learned what made that funny little scum, I saw that hard water was out for washing," Ann said emphatically, "and I found I had to go on and learn how to soften the water next."

Commercial water softeners there are a plenty. They carry their own directions for using, of course. Washing soda can be made into a solution, one pound to one gallon of boiling water, and added to the wash water to soften it. Borax and ammonia, two other softeners in common use, can be added to the water directly.

Soda can be used to soften the water for washing cottons and linens, but silks and wools had better be washed in water softened with one of the other two.

A little experimenting showed her how much softener she needed for the water in her well; one cup to 10 gallons of water for the soda-solution—and half a cup of the borax or ammonia.

"I put it and the soap in like a regular recipe," Ann says, "½ to ¾ of a cup of soap flakes to 10 gallons of water, and I always have a good live suds that will pick up the dirt.

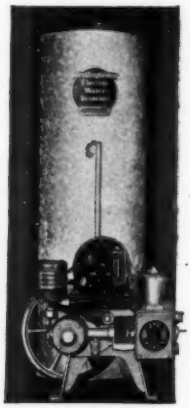
"And now that the washboard has gone, and a machine does all the rubbing and rinsing for me, I find that the soap and the softeners and water of the right temperature are more important than ever. If I have them right, I can push a button and know that my clothes will come out clean. The machine will do the work."

"One may become the slave of wrong habits, but he is surely the master of the right ones."
Lillian Gilbreth.

* * *

"A curve in the road and a hillside,
Clear cut against the sky—
And old tree tossed by the autumn wind,
And a white cloud riding high.
Ten men walked along the road,
And all but one passed by
He saw the hill, and the tree, and the cloud
With an artist's mind and eye—
And put them down on canvas
For the other nine to buy."

A CITY WATER SERVICE of Your Own



Type W-300A System

ELECTRICITY can give you the convenience of running water as easily as it gives you light — if you'll just hook it up with a Westinghouse Electric Water System.

This remarkable new Water System is fully automatic. It starts itself, stops itself, adjusts itself — by means of two "Automatic Watchmen." It will pump water from deep or shallow well, cistern, spring, stream, lake — or it can be used to boost the pressure of weak water mains. It is in every way dependable, built of the finest materials, factory-tested and Westinghouse-guaranteed.

No matter what your demands for running water may be, there's a size and model of Westinghouse Electric Water System to meet your needs. Send in the coupon and our Water System Engineers will tell you what type will serve you best, how little a complete Westinghouse installation will cost, and how easily you can buy it on convenient payment terms. Fill out and mail the coupon today for information that will be to your interest.

Westinghouse

ELECTRIC WATER SYSTEMS

(AUTOMATIC)

Westinghouse Electric & Manufacturing Company,
Small Electric Plant Section, East Pittsburgh, Pa.

Please send me information regarding the type of Westinghouse Automatic Electric Water System I need to meet the following requirements:

My source of water supply is Well.....Cistern.....Spring.....Lake.....
The well is.....feet deep. Dug.....Bored.....Driven.....
Number of people in family.....Number of rooms in house.....Stories.....
Number head of stock.....
We use about.....gallons of water daily.
We have electricity.....
The highest point to which water will be forced above pump is.....
Name.....
Address.....State.....

E.F. 10-29

Now

Equipped with gas engine for homes without electricity

a Washing and Ironing Machine Combined

At a price formerly asked for a washing machine alone

WOMEN on the farms—you can now be rid of the drudgery of both washing and ironing, and pay no more than you have been asked for a good washing machine.

The Hurley Machine Company has just perfected this complete laundry unit—the first and only machine of its kind. It combines the Thor Agitator—world's most thorough and efficient speed-type washer—with the New Thor Rotary Iron, that does your ironing in one-fifth the time required by hand.

The Thor name on this new laundry unit is your assurance of lasting satisfaction. Write us for illustrated booklets describing this and other Thor home laundry equipment.

THE HURLEY MACHINE CO.
22nd Street and 54th Avenue
Dept. 10-E. Chicago, Ill.

Poultry Profits

(*Continued from page* 13)

duction and result in the fowls losing their weight. This appears to be one of the causes of slumps in production and winter molting. However, if the kind and amount of feed and proportion of grain and mash are properly regulated and the plan of both morning and evening illumination is followed, illumination should be of benefit to the birds and more profitable to the owners."

Grading of Fruit

(*Continued from page* 16)

and inefficiency on the part of the workers.

In selecting a fruit grader care should be taken that the machine selected have sufficient capacity for the conditions under which it is to work. It should be capable of handling the required number of grades and should not bruise tender varieties. If fruit other than apples are to be handled in the same house the suitability of the grading machine for handling all of these fruits should be taken into account. Electric motors should be used for driving the grading equipment wherever possible, as regulation of speed is an important item and the electric motor is especially well adapted for this purpose. A one-half H.P. motor is sufficient to operate the average grader and the energy consumption is relatively small, ranging from .5 to 1.5 kw hrs., or an average of about 1 kw hr. per 100 bushels graded.

Where Additional Information on Equipment May Be Secured

Information on grading equipment, packing and storage houses, etc., can be secured by writing the State horticulturist of the State in which the grower is located. The leading manufacturers of grading equipment will also gladly give advice on the type and size of equipment necessary for any particular kind of fruit. The addresses of such manufacturers can be secured by writing to this publication.

Corn Husker

(*Continued from page* 18)

Another of the important results which were disclosed through these tests was an additional practical use for a 5-hp. motor on the farm. Already the feed grinder, ensilage cutter, grain elevator, and wood saw are known to be well adapted for operation with a 5-hp. electric motor. This additional use for such a motor means that more hours of use will be made of such motors during the year and the overhead charge per hour will be reduced. Further, this fact will enable many farmers to husk and shred their corn at the time when it is ready.

The third important factor disclosed from these tests is that it will more easily enable the electrified farmer in the area infected by the corn borer to destroy the borers in his corn fodder. Results reported in Farmers' Bulletin Number 1589 published by the U. S. Department of Agriculture states that "the husker-shredder has been found to be very effective in destroying borers in corn fodder."

It is also reported that "shredding or cutting corn fodder into fine pieces as is ordinarily done by husking and shredding machines kills from 98 to 100 per cent of the borers." It is of course not practical for farmers in the infested area to put all of their corn crop into the silo for the largest share of the corn crop is used as grain. This need for the grain introduces the problem of killing the borers which are alive in the corn stalk. The husker-shredder as previously reported does kill these borers and at the same time through shredding the stalks, facilitates storage and handling whether for feed and bedding or for bedding alone.

For the farmer in the infested area with electric service, the 5-hp. motor and two-roll shredder provide a very satisfactory outfit for control of the borer in stalks where the corn is husked. Two or three farmers may jointly own such an outfit and conveniently handle the husking and shredding to be done each year on their farms.

Wash Day Slavery

is leaving the farm

With General Electric Motor

NEVER was a task so tiresome and back-breaking as the task of bending over a washboard for hours each week.

Farm women demanded relief from this drudgery — and electricity came to do the work in less than half the time — at a cost of about 5 cents an hour.

Now—the originator of the electric washing machine offers farm women the fastest, most modern washing machine on the market. It does *all* the work. It washes a tubful of clothes clean in 5 minutes. It has fewer moving parts than any washing machine on the market. No belts to slip and break—nothing to get out of order.

This is a Thor washer—of lifetime Thor quality. And it's the lowest-priced quality washing machine on the market.

For complete information on this new washer—and the complete line of Thor labor-saving laundry equipment—write to

THE HURLEY MACHINE CO.
22nd Street and 54th Avenue
Dept. 18-E Chicago, Ill.

Electric Household Refrigeration

By W. T. ACKERMAN
Research Specialist in Rural Electrification

In last month's issue appeared the first installment of an article on electric household refrigeration by Mr. Ackerman. In that article he referred to tests conducted at Durham, New Hampshire, outlining some of the results secured from these tests. Below are given the figures in detail.

Experimental Work

On the 6 farms which comprised our experimental group for testing the merits and demerits of household refrigeration, 4 standard makes of refrigerators have been observed for the past 3 years.

Complete details and results appear as Bulletin 244 "Electric Household Refrigeration," Address the Rural Electric Dept. University of N. H. Exp. Sta., Durham, N. H.

Here Is one of the Electric Refrigerators, of Small Size, which was included in the Tests.

Summary of the Tests

Six farms were used in testing the merits of electric refrigeration in the home, among which were dairy, poultry and fruit farms.

Electric refrigeration gained a position of being one of the most serviceable and desirable major units for the farm home.

The general results obtained were much superior to the ice method, and no adverse criticism of any consequence was noted.

Two methods of using refrigeration were included: (1) Individual refrigerators for the house, (2) combined with dairy cold storage.

Both self-contained and separated types of units were employed.

Three principal styles of equipment were represented: (1) Commercially built single cabinet unit; (2) common commercially built refrigerator converted to electric operation; (3) the home-made refrigerator converted to electric operation.

Both insulated and uninsulated cabinets were used.

Breakdowns and current interruptions were very limited.

Farms using other refrigeration equipment than the house unit as well as those using only house units were used for the tests.

The refrigerators varied in size from 5.5 cu. ft. of food storage space to 30 cu. ft.

1. The average size of refrigerators was 27 cu. ft. total contents and 10.5 cu. ft. food storage space.

2. Two farms operated equipment on a 12 months basis and four on a 9 months basis.

3. The original investment in electric equipment averaged $370.40 as compared to $282.50 for the ice

HARVEST TIME IS NOT IMPROVEMENT TIME

HARVEST Time is too filled with work and worry for one to stop to make improvements; yet it is an ideal time to consider your needs and plan for the future. . . . For example, you can tell best right now what *interior wiring* you require. And, while on that subject, what is *SAFER*—more *ECONOMICAL*—has the *LONG LIFE*—and is as *RELIABLE* as the KNOB & TUBE SYSTEM of farm wiring?

Consult your local Contractor-Dealer for further details or write to the following sponsors:

PORCELAIN

KNOB & TUBE WIRING

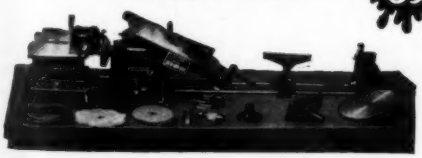
SAFE DEPENDABLE ECONOMICAL

PORCELAIN PRODUCTS, INC.
Findlay, Ohio

KNOX PORCELAIN CORP.
Knoxville, Tenn.

ILLINOIS ELECTRIC PORCELAIN CO.
Macomb, Ill.

COMPLETE $89



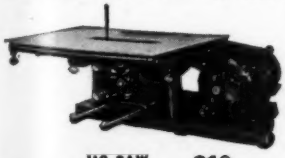
LOW PRICE
Includes all this:
4" Planer
8" Circular Saw
6"x36" Lathe
8" Disc Sander
6" Buffing Wheel
5" Emery Grinder
¼" Drill Chuck
¼-H.P. G. E. Motor, 110-Volt, A.C., 60-Cycle
Endless V-Belt, two 4" and one 2¼" V-Belt Pulleys, Cast Iron Sub-base and 10 ft. Cable with separable Plug.

WORKACE Electric WOODWORKER

Recognized everywhere as the standard outfit for home and commercial use!

The most complete all-electric woodworking shop made. It's guaranteed for one year against defective parts. Fast, accurate, powerful and easy to work with; makes everything out of wood. Nothing like it sold or advertised. Send for complete description.

EASY TERMS:
$9 down
$9 per mo.



JIG SAW ATTACHMENT **$10.**

J. D. WALLACE & COMPANY,
2848 West Adams Street, Chicago;
11 West 42nd Street, New York City
268 Market Street, San Francisco.

I want to know all about the Workace Electric Woodworker.

Name .....

Address .....

method. The fixed charges on these were $18.20 and $12.15 per year, respectively. These costs show 31% greater investment for the farmer.

The combination dairy and household storage showed a lower investment cost than any other method.

4. Rates varied from 3 1-7 cents to 7 cents per kilowatt-hour, with an average of 4 2-3 cents.

5. Current consumption on the five standard types averaged 41 kwhrs. per month. The average maximum and minimum was 67 kwhrs. and 13 kwhrs. respectively The highest individual month was 100 kwhrs.

All machines used an average of 1.4 kilowatt-hours per day. The extreme daily consumption varied from .2 to 3.2 kilowatts per day.

The lowest consumption factor, in the standard type household machines, was developed by an old refrigerator without special insulation, but placed in a very cool location—emphasizing the importance of the temperature of the room in which equipment is placed.

Kilowatt-hours per cu. ft. of total box capacity varied from .0016 to .007.

Some indications were found that there was an increase in efficiency with an increase in the size of refrigerator.

While 514 kwhrs. and 151 kwhrs. were the largest and smallest annual amounts, 395 kwhrs. was the average for a year.

The combination dairy and household storage operated on one-third the amount used by other types.

April or May are the months when equipment is started in use on the 9 months basis. In December they are shut off.

July, August or September show the heaviest peak load.

6. The average annual cost of operation was $20.97 exclusive of the combination method.

7. The average monthly cost was $2.36.

8. The daily average was 7½ cents.

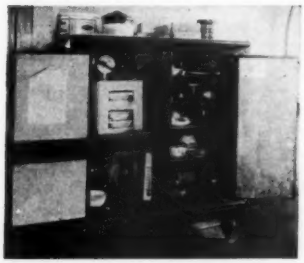
9. Total amount costs for using ice averaged $41.63 per year with extremes of $22.86 and $64.00.

10. The average monthly cost for ice was $6.29, making a daily average of 21 cents.

11. The average time of operation of compressor units was 19% of the total elapsed time.

12. Ice for the farm was found to be as expensive, generally, as ice in the city.

13. Distinctly superior results were obtained from the electric method than with ice, from the standpoint of quality of refrigeration.



A more Commodious Electric Refrigerator. One of those tested by Mr. Ackerman

Lighting the Home

(*Continued from page 22*)

should be equipped with glass shades suitable for 25, 40 or 60-watt lamps. If wall switches are not desired, key sockets will be found more serviceable than pull type.

An installation laid out in general as described will insure a cheerful and happy farm home. Under sufficient illumination, indoor work is not a burden while reading and writing are more than pleasures. If, in addition to the proper amount of light, there is also soft, well distributed illumination, long hours of work or study may be indulged in without eye strain or excessive fatigue. Rooms with no unscreened light sources or deep, harsh shadows will be most used. You will never regret the original investment or complain about the cost of upkeep of a lighting system so installed as to produce not merely so much light but, what is more desirable, correct illumination.

Electrically Equipped
DE LAVAL
Seperators and Milkers
For Every Sized Herd

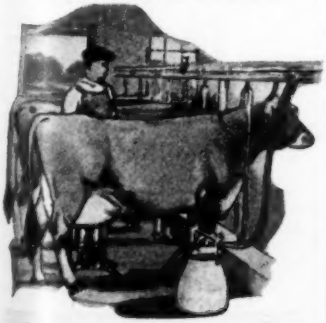
NO matter how many cows you milk there is an electrically operated De Laval Separator and Milker to meet your requirements. They are dependable and efficient, offering you all the advantages and superiorities of De Laval separating and milking, plus reliable, clean and economical electric power operation.

The De Laval Separator Co.

New York
165 Broadway

Chicago
600 Jackson Blvd.

San Francisco, 61 Beale St.



This Cleaner Gets 28% More Dirt

In tests made by Modern Priscilla Proving Plant, the Hamilton Beach "triple action" cleaner removed 28% more dirt than the average removed by 14 other cleaners.

"Triple action" . . . sweeping, beating, suction . . . is necessary to loosen the dirt and pick up threads, hair and lint.

Every Hamilton Beach cleaner is backed by a 127-year-old $33,000,000 company.

Write Hamilton Beach Mfg. Co., Dept. C-6057, Racine, Wis., for descriptive folder and name of nearest dealer.

Hamilton Beach

Was $62.50

Now

$39.50

Denver & West $41

2 Year Guarantee

5 Horse Power Century Type RS Repulsion Start Induction Single Phase Motor

Electricity on the Farm

is a work-saving convenience—particularly if you use Century Motors. In many installations, 25 years of operation have proved them dependable "hired hands" that "Keep a-Running" when they are needed most.

CENTURY ELECTRIC CO.
1806 Pine St. St. Louis, Mo.

40 U. S. and Canadian Stock Points and More than 75 Outside Thereof

Century MOTORS

WATER SYSTEMS
Increase Farm Profits!

A LITTLE Paul electric pump will deliver *more water for a cent than a man can pump and carry in an hour.* Plenty of fresh, clean, cool water for kitchen, dairy and barn! *What a relief from back-breaking labor!* Facts prove, too, that ample water supply greatly increases profits from live stock, dairy and poultry.

If you do not have an efficient water system, you are not getting the most from farm electricity. Write us today!

FORT WAYNE ENGINEERING & MFG. COMPANY
FORT WAYNE INDIANA
Pumps & Water Systems, Softeners, Heaters

Fort Wayne Engineering & Mfg. Co.,
1722 N. Harrison St. Fort Wayne, Ind.
Send complete information and prices on Paul Water Systems.

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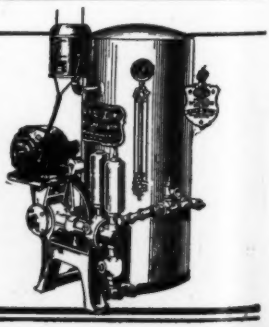


A New Contest—More Prizes

This month a cash prize of $25 will be awarded for the best letter of less than 100 words on the subject "My Favorite Electrical Servant and Why."

In addition, the writers of those letters deserving honorable mention will be awarded consolation prizes of $2.50 each. Ten such prizes will be awarded. In case of a tie, contestants will receive the full cash prize to which they are entitled.

Prize winners' names will be announced in our December issue and winning letters published in that and subsequent issues.

The rules for this contest are:

(1) Write only on one side of the paper.
(2) Print name and address clearly at the end of your letter. Neatness as well as originality will be taken into consideration by the judges.
(3) Each member of the family may submit one letter.
(4) Letters must be mailed to Contest Editor, Electricity on the Farm, 225 West 34th St., New York City, before November 1.

Winners of the August Cover Title Contest:

FIRST PRIZE

"Divers Reasons for Electricity on the Farm"
Mrs. J. S. Kemp, R. 4, Ashtabula, Ohio

THE following titles have been selected as the winners of the $5 cash prizes:

"The Current Pays in Divers Ways," Mrs. W. H. Newcomer, R. 6, York, Nebr.

"Electric Fans Aid Swimming Plans," Ethel A. West, Stockton, Ill.

"Switching on a Dry Current, Saves a Switch After a Wet Current," Lois E. Wentzel, Bellingham, Mass.

"Current Breezes Remove for Jim, All Evidence of the Forbidden Swim," D. V. Bostwick, Ardmore, Okla.

"No Need to Worry or Get in a Flurry, When Electricity Dries, It Dries in a Hurry," M. E. Barnett, Route A, Kenedy, Texas.

Teaching the Farmer and His Son

(*Continued from page 25*)

due University, Lafayette, Ind.

"Electricity on the Farm," Magazine. Published at 225 W. 34th Street, New York City.

News Letter, No. 5, March 20, 1929. Committee on Relation of Electricity to Agriculture, 1120 Garland Bldg., 58 E. Washington St., Chicago, Ill.

"Turn on the Water." Circular No. 229. College of Agriculture, University of Wisconsin, Madison, Wis.

Municipal Ownership and the Cost of Electric Energy, by Prof. Edward Bennett, College of Engineering, University of Wisconsin, Madison, Wis.

Unit Electric Plants for Nebraska Farms by E. E. Brackett and E. B. Lewis. Bulletin 235. University of Nebraska, College of Agriculture, Lincoln, Neb.

Motion Pictures and Slides:

1. General Electric Co., care G. A. Rietz, 230 S. Clark St., Chicago, Ill.
2. Dept. Visual Instruction, University of Wisconsin, Madison, Wis.
3. American Farm Bureau Federation, 58 E. Washington St., Chicago, Ill. "The Romance of Sleepy Valley."

Daylight Indoors

(*Continued from page 26*)

another must be provided by the heating equipment of the building. The more windows there are in a house, the faster will the coal in the bin vanish.

In estimating the initial cost of natural lighting obtained by means of windows, the experts included the cost of window-frames, sash, glass, accessories, trimmings, installation, painting, etc., less the cost of wall and plaster replaced by the window. To this initial cost of window is added the cost of radiation and heating system required to supply the increased heat loss of window surface over wall area.

The annual cost of natural lighting includes: the interest at 6 percent on the net initial cost of windows, heating systems, net annual repair, cost of washing windows, heat loss (which means additional heat required by the heating system), etc.

The initial investment of electric lighting includes the cost of electric wiring and cabinets, wall and ceiling fixtures, table and floor lamps, shades and reflectors, and other similar equipment. The annual cost includes the interest on the initial outlay, depreciation and repairs, lamp renewals, and the cost of electric energy.

In short, the computations were made with the intention of conservative judgment, and the data employed in each case were representative of actual existing buildings.

Hence the figures given above as to the comparative cost of daylight and electric light were very carefully compiled and show in an impartial manner the status of each.

That industry was quick to appreciate the greater efficiency of electric lighting is shown by lighting equipment installed in any of the modern factory buildings. In many cases, in addition to general illumination, each machine is individually lighted, and the result is faster and safer work, with a much higher grade of workmanship. What city industry has learned, the farm industry will be quick to recognize, and farm buildings of the future may be expected to utilize artificial lighting on a wider and wider scale.

Dairy Refrigerator

(*Continued from page 28*)

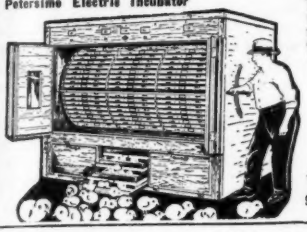
disconnecting the coils and brine pipes.

The tank supports were protected from moisture by three coats of white lead paint. Painting not only protects the wood but improves the appearance of the box. The cork on the inside of the box was plastered with three thin coats of cement, making the box almost moisture proof. The cork on the bottom of the box was covered with a coat of cement varying in thickness from about 2½" to 3" due to the slope of the cement floor in the milk house.

The doors were equipped with a heavy handle, refrigerator latch, and brass weather strips. The brass weather strips on the hinge

Don't Fail to Ask Your Power Company About—

the greatest hatching machine of the century—"Challenger Model" Petersime Electric Incubator

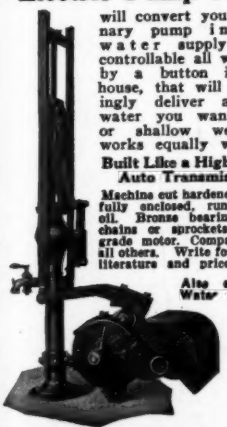


and the now-famous Smith Brothers Electric Brooder, which can be ordered direct from this list:

18 in.	75	chick size,	$9.50
24 in.	100	chick size,	10.75
32 in.	200	chick size,	16.00
42 in.	350	chick size,	20.00
56 in.	600	chick size,	24.00
72 in.	1000	chick size,	36.00

WELLINGTON J. SMITH CO.
936 Davis-Farley Bldg., Cleveland, Ohio

The LAUSON Electric Pump Jack



will convert your ordinary pump into a water supply unit, controllable all weather by a button in the house, that will unfailingly deliver all the water you want—deep or shallow well, it works equally well.

Built Like a High Grade Auto Transmission

Machine cut hardened gears, fully enclosed, running in oil. Bronze bearings. No chains or sprockets. High grade motor. Compare with all others. Write for special literature and prices.

Also complete Water Systems

The John Lauson Mfg. Co.
700 Michigan St., New Holstein, Wis.

THERE IS LIGHT!

The "CHICK-LITE"
For Chickens—Pheasants—Turkeys, etc.

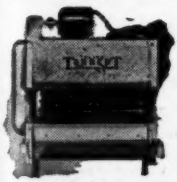
The "POULTRI-LITE"
For Large Flocks—in exercise rooms, Laying Houses, Brooder Houses, etc.

The "STOCK-LITE"
For Cattle—Swine—Sheep, etc.

The strong Ultra-Violet Rays from these lamps assure healthier animals and fowls, greatly increased production of highest grade offspring.

Obtainable ONLY thru the use of Dr. Chesney's "Sunshine Carbons." An exclusive feature of these lamps. Let us give you complete information.

RUSSELL ELECTRIC CO.
380 West Huron St., Chicago, Ill.



Torrent Bunch Vegetable Washer A Truck Farm Need

Saves its Cost in a Few Months.

Will increase your profits. Know more about this great time saver.

Felins Tying Machine Co.
1184-98 Fourteenth Street
Milwaukee Wisconsin

Clip and Groom your Cows

Clipped and Groomed Cows during stable months are clean and comfortable and keep the dirt out of the milk pail.

Clipping and Grooming will improve the health of your Live Stock.

Use a GILLETTE Portable Electric Clipping and Grooming Machine. Operates on the light circuit furnished by any Electric Light & Power Co., or on any make of Farm Lighting Plant.

Price List on Request

Gillette Clipping Machine Co., Inc.
129 West 31st Street, Dept. 11,
New York City

Clip Your Cows Electrically

The New **STEWART STOCKMAN**

is a powerful, smooth-running, quiet machine. Will give years of low cost service. Supplied for any specified current, from socket or lighting plant. Quickly pays for itself. Priced as low as $45.00.

Other Clipping machines as low as $14.00.

More Profit From Your Cows

Clipped cows give more milk, richer in butter fat. Clipped cows are easiest to clean—their milk is cleaner and stays sweet longer. Tests show increased profit as high as $1.40 per month per cow.

Ask Your Dealer—Or Write for FREE Catalog

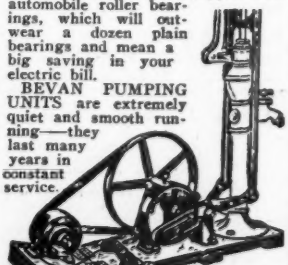
Chicago Flexible Shaft Company
5524 Roosevelt Road, Chicago
40 Years Making World's Best Clipping and Shearing Machines

FRESH WATER

direct from your well at city pressure. No storage tank to leak or water-log. A Bevan Electric Pumping Unit and Automatic Fresh Water System are all you need. Easily attached to any farm pump in a few minutes. The low cost will surprise you!

Bevan UNITS are equipped with automobile roller bearings, which will outwear a dozen plain bearings and mean a big saving in your electric bill.

BEVAN PUMPING UNITS are extremely quiet and smooth running——they last many years in constant service.



Write for prices, stating your water lift, also size and stroke of your pump cylinder.

ACME MACHINE CO.
2901 Fremont Ave. So., Minneapolis, Minn.

edge of the doors aid materially in opening the doors. Another feature of the box was the use of one-half inch truss rod, through the outer tank supports and under the beam supporting the tank. The rod prevented any sagging of the beam on the top of the lower doors.

The costs of the various parts were accurately recorded during construction. A table of costs of the refrigerator box appears in the following table:

Article	Number-Amount	Cost
Cement Labor		9.00
Carpenter Labor	@.75	66.40
Milling Labor		5.25
Nails		.39
Hinges 2½"	1 pair	.50
Hinges 3"	4 pair	2.70
Door lock		2.40
Latch on doors	1	.75
Brine Tank Valve	1	1.75
Unions	2	1.20
¾" pipe	10 feet	1.40
Truss Rod	1	1.25
2x 4's 12'	2	.50
4 x 4's 16'	7	4.55
Cement	2 sacks	2.20
Sand	2 sacks	.75
Metal Lath	2 x 8	.71
Cork		33.70
Asphalt Paint		1.50
Three-ply veneer	36 Sq. Ft.	3.60
Tongue and Groove 3" Flooring	80 Sq. Ft.	5.10
Tank 18" x 20" x 83"	1	45.00
$CaCl_2$ (Calcium Chloride)	375 Lb.	22.50
	Total	$214.50

Proven a Pleasure and Profit

We have had electric lights for a year and a half and they have certainly proven a pleasure and profit to us. From the two-hundred chickens which we have we get an average of one hundred and forty eggs every day. This is one way electricity serves us and we have been able to pay many of our expenses from the chicken money.—*Mr. Wm. Hill, Route 1, Brookfield, Wis.*

CLASSIFIED ADVERTISING

INVESTIGATE the proven records of economical operation and success of the **LYON IMPROVED ELECTRIC BROODERS.** Send for free authentic information and reports on electric brooding. Also **ALARMS**, Power-off, Temperature, Burglar, Heating & Thermostatic Supplies. Interesting circulars on modern poultry equipment upon request. Lyon Electric Co., Dept. **FF**, Box 1436, San Diego, Calif.

SMITH ELECTRICS

52,000 Eggs **30,000 Eggs**

The Farthest Step Ahead in Electrical Incubation

FIRST in performance, results and quality chicks. Lowest in current consumption and cost of operation—highest in profits. The outstanding incubator of today.

Write for new Electric Catalog

The Smith Incubator Co.
3192 W. 121st St.
Cleveland, Ohio

To Our Farm Friends

Only products manufactured by reputable firms will be found in the advertising pages of "Electricity on the Farm." You may buy with assurance that they represent full value.

Sharp Tools Save Time

Use a LUTHER Grinder

Make yourself a portable grinder using Luther's No. 307 general purpose farm grinder and a ¼ H.P. motor. Useful attachments and wheels for sickles ensilage cutter knives, axes, tools, etc. Order a grinder through your dealer; $9.00 complete ready for use. Save the grinder cost sharpening silage knives alone. Literature on request.

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280 South Water St. Milwaukee, Wis.

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NEW WAY TO MILK COWS

The Surge Milker

Free Demonstration

Ask for free demonstration of this wonderful new milking machine. The Surge milks cows like no other machine ever milked cows before—milks them faster, cleaner and better! Has NO long Tubes—NO Claws. Overcomes bacteria troubles. Milk travels only 4 inches from teat to to pail. Write at once for free catalog and details of our Free Demonstration Offer, Easy Terms and rock bottom prices.

PINE TREE MILKING MACHINE CO.,
Dept. 55-17 2843 W. 19th St., Chicago, Ill.

OAKES ELECTRIC BROODERS

Raise Healthy Chicks This Sure, Easy Way

Here's the latest. It's economical automatic, fumeless safe and sure.

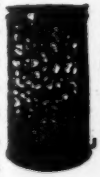
Four Sizes—100 to 650 Chicks

Cat. No.	Size	Chick Capac.	Wt.	Each
G-90	22-in.	100 Chicks	15 lbs.	$10.50
G-91	32-in.	250 "	35 lbs.	16.00
G-92	42-in.	425 "	70 lbs.	20.00
G-920	52-in.	650 "	100 lbs.	24.00

Sold by electric appliance and poultry supply dealers or public utility companies. Write us for literature.

Oakes Mfg. Co., 77 D. St., Tipton, Ind.

CHURN BUTTER WITH THE E-Z CHURN



The Churn E-Z Churn is guaranteed to churn butter quicker and better than any other method. It is a great labor saver and you get more and better butter. Absolutely necessary if you have a cow.

Churn can be set on the center post of any modern washing machine

Write your dealer for full information, or, if he cannot supply you write us;

COLE MANUFACTURING CO.
BIRMINGHAM, ALA.

ELECTRICITY and a DAYTON Water System will provide your farm with the greatest convenience of all —*Running Water.* DAYTON Water Systems are made in a complete range of capacities for deep and shallow wells. Write for details.

The Dayton Pump & Mfg. Company

Pioneer Makers of Private Water Systems

The DAYTON Unisystem made in four sizes. Dayton, Ohio, U.S.A.

Sewing Machine Motor Serves

As I haven't seen an article on a motor for the sewing machine in *Electricity on the Farm* I want to tell you what a wonderful little convenience it is. I do all of my sewing for a family of eight —three girls beside myself to make dresses for. I also make all of my ruffled curtains and piece quilts and sew carpet rags on my sewing machine. It is so easy to operate that the girls run it, and so inexpensive we don't notice any difference in our electric bills whether we do a lot of sewing or not. The motor runs the machine so much smoother than you can run it by foot that it isn't hard on the machine. I have called up a friend at two o'clock and told her I had two dresses out ready to make and at four she would call me to see how I was getting along with them, and I had them all done,—just pressing the last one, and she couldn't see how I did it. But of course I give the credit to my silent servant "electricity." In two short winter afternoons I have pieced a quilt top and set it together and got it all ready to quilt. I have often made a dress after supper, thanks to my motor and lights. My little girl says what she likes the most about it is the machine can't go backward and I think that is a good object lesson for anyone who uses electricity: "we can't go backward." We have to keep advancing to keep up with the wonderful things electricity is doing for us farmers.

Mrs. Fred. Costerisan,
LaValle, Wis.

• • •

How It Serves Us

The object of this letter is not to suggest to the readers of this magazine new uses to which electricity can be put in the home. The reason for writing is a sincere desire to inform our brother-farmers and ranchers of the diversified tasks to which this "hidden-power" can be put. The lovers of progressiveness may be interested in the following and, at the same time, those of our colleagues who are still hesitating about seeking the true "light" will feel encouraged to step up and join the rank and file.

Some of the ways electricity serves us are: The electric range, with its oven; the toaster and the percolator (just beginning to bubble). On a shelf lies the flatiron ready for immediate use. The electric sewing machine adorns a corner of our home. There is a heater in the bathroom and each room has a cluster of bulbs hanging from the ceiling. Then, too, we have the radio equipped with a B battery eliminator. This does away with the necessity of having batteries. By pressing a button the pump in the well begins to force water into the tank for use in the house. There is a light on the porch and a dinner bell on the roof to tell us when meal time has arrived.

In the workship there are soldering irons; a quarter-H. P. motor for operating the feed grinder, the tire pump, and the blower for burning fir stumps and roots underground. This also serves to operate a battery charger which was made from an old auto generator. It is no trouble at all to keep the A batteries for the radio and the automobile batteries charged.

Finally, electricity is the servant that makes the chickens quit their roosts at an early hour. This is accomplished by operating a switch in our bedroom. Lights are turned on in the hen house without any inconvenience whatever.

Ed. Couture,
Route No. 2,
Edmonds, Wash.

• • •

Toaster and Corn Popper

We hope to add a number of labor saving devices soon, also some of the smaller conveniences, such as the toaster and corn popper. The one big item to which I am looking forward is the electric range. Just think, no more ashes or soot to clean. Cooking would have no drawbacks then. What we have of electric appliances are such "labor savers" we can't help anticipating the joys yet to come.

Mrs. L. E. Patton,
Sandy Lake, Pa.